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# **Planning Statement**

## Glendale, Heskin

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## **Appendices**

Appendix 1 – 1903 (SK) 0031 Volume Position (Rev A) prepared by Bennetts Associates

Appendix 2 – Proposed Model Condition for Zero Carbon

## 1. Introduction

- 1.1 This Planning Statement has been prepared by Lambert Smith Hampton (LSH) for and on behalf of Ruth and Andrew Huntley-Jacobs (“the applicant”). Its purpose is to set out the planning case in support of a planning application for the following development at Glendale, Sanderson Lane, Heskin, Lancashire, PR7 5PX:

*Demolition of existing two residential properties and erection of a replacement dwelling, together with associated access and landscaping.*

### Application Site

- 1.2 The application site is outlined in red on the submitted Site Location Plan. It has an area of 2.22 ha and lies within a predominantly rural area surrounded by several small hamlets and villages. It is bounded on three sides by mature tree woodland, with the northern boundary providing open views across the Fylde plain.

### Land Ownership

- 1.3 Certificate B has been completed and the appropriate notice served.

### Form and Content of the Application

- 1.4 In addition to this Planning Statement, the submitted application comprises the following:
- Duly completed application form and certificates;
  - Design and Access Statement prepared by Bennetts Associate Architects (BAA) and Exterior Architecture;
  - Application Plans by Bennetts Associate Architects, including:
    - Site Location Plan
    - Site Plan
    - Floor Plans
    - Elevations
  - Net Zero Carbon Statement prepared by Max Fordham;
  - Flood Risk Assessment and Drainage Strategy prepared by Thomas Consulting);
  - Landscape Visual Impact Assessment prepared by Exterior Architecture;
  - Preliminary Ecological Appraisal prepared by Amenity Tree Care Ltd;
  - Bio-Diversity Net Gain Statement by Amenity Tree Care Ltd;
  - Bat Roost Assessment (Preliminary Building Inspections) by Amenity Tree Care Ltd;
  - Tree Survey and Arboricultural Assessment prepared by William Brockbank
  - Transport Note prepared by Mode Transport;

### **Environmental Impact Assessment**

- 1.5 The development proposals clearly do not fall within the descriptions of development listed in Schedule 1 to the Town & Country Planning (Environmental Impact Assessment) Regulations 2017.
- 1.6 Furthermore, having regard to the descriptions of development and applicable thresholds in Schedule 2 to the Regulations, in particular Category 10(b) – Urban Development Projects, it is considered that proposals do not constitute ‘EIA development’.
- 1.7 Accordingly, no Environmental Statement has been submitted in support of this application.

### **Consultation**

- 1.8 The evolution of the development proposals has been informed by formal pre-application advice (LPA Ref: PRE/2021/0083/MIN) from Officers of West Lancashire Borough Council (WLBC) received on two occasions, further details of which are provided in the submitted Design and Access Statement. No wider public consultation has been undertaken. We can confirm that a collaborative and productive dialogue has been had with the assigned case officer (Emma Bailey) where key items and matters have been subject to pre-application advice and comment and together has ensured a better development is presented.

### **Report Structure**

- 1.9 Following this introduction, the remainder of the Planning Statement is structured as follows:
  - **Section 2** describes the application site and surroundings;
  - **Section 3** summarises the relevant planning policy framework;
  - **Section 4** provides a description of the proposed development;
  - **Section 5** considers the planning issues relevant to this planning application; and
  - **Section 6** highlights the reasons why planning permission should be granted.

## 2. The Application Site and Surroundings

- 2.1 The application site is broadly rectangular in shape, extending to 2.22ha within a predominantly rural setting.
- 2.2 It has a varied topography, with two main residential homes being located at the top of a hillside, along the southern boundary. These are reached by a long, private, hardstanding driveway which leads from Sanderson Road, accessed from the most north-eastern and lowest corner of the site.
- 2.3 The main home is of red brick construction, with grey roof tiles, positioned on a plinth that sits into the hillside. It measures 4 metres to the eaves and has a pitch roof with a ridge height of 9.7 metres.
- 2.4 It accommodates 664.0sqm, split across two and a half levels. The lower ground floor (202.sqm) includes utility and library rooms. The ground floor (240sqm) includes a north facing terrace and seven rooms comprising a main lounge, breakfast room, formal dining room, kitchen, snug, bathroom and bedroom, in addition to a rear veranda. The first floor (220sqm) includes an extensive lobby providing access to five rooms, including three bedrooms, a dressing room, en-suite and family bathroom.
- 2.5 Additionally, there is a separate, detached bungalow that extends to over 118sqm and is 4.2 metres in height. It is also of red brick construction, and provides four rooms, including a lounge/kitchen, two bedrooms with separate toilets and a bathroom.
- 2.6 In total the existing properties have a volume of 2,181m<sup>3</sup>.
- 2.7 Within the curtilage, there is a wooden shed building that is approximately 13.8sqm in area, and a stable block including two stable rooms and a tack room. This comprises 36.4sqm and is of timber construction. Given that these are outbuildings to the current property we have not included these in the volume analysis of the main buildings.

### **Surroundings**

- 2.8 The application site is bounded to the north by open countryside. Sanderson House Farm is the next neighbouring building, beyond which lies a small hamlet.
- 2.9 The eastern boundary is formed by Sanderson Lane, which also includes a mature tree belt screening the site from views west. East of this is also open countryside and O Th Hill Farm and associated farmland.
- 2.10 To the south and rear of the property lies 9.3ha of mature woodland, which leads on to further rural fields, and to the west is an additional mature tree belt forming the boundary with a neighbouring residential property named Harrock Holt, with high mature tree coverage. Further farm holdings lie beyond this.
- 2.11 More widely, the site is approximately 2.3km to the south-east of the settlement of Mawdesley, 3km south of Eccleston and 2.7km west of Heskin.

### Relevant Planning History

2.12 There are three planning applications of relevance to the proposed development, all granted, which are outlined below.

Ref.	Description	Decision
2021/0728/LDC	Certificate for Existing Use	Granted 19 <sup>th</sup> November 2021
2018/0784/FUL	Proposed sand paddock	Granted (10/05/2019)
1999/0163	Two storey extension at side	Granted (21/05/1999)
1987/0412	Detached garage, loose boxes, conservatory and extension of residential curtilage	Granted

Source: West Lancashire Borough Council (2021)

2.13 Additionally, the main building has not been subject to any permitted development rights under the Town and Country Planning (General Permitted Development (England) Order 2015 (the Order).

### 3. Relevant Planning Policies

3.1 Section 38(6) of the Planning and Compulsory Purchase Act 2004 states that planning applications should be determined in accordance with the statutory Development Plan unless material considerations indicate otherwise.

3.2 In this case, the statutory Development Plan comprises:

- West Lancashire Local Plan 2012-2027 (Adopted 2013)

#### **West Lancashire Local Plan**

3.3 The West Lancashire Local Plan (WLLP) was adopted in October 2013. It sets out the spatial vision and strategy for development in West Lancashire for the period 2012-2027, replacing the previous Local Plan which covered 2001-2016.

3.4 The WLLP contains several policies of relevance to this application that have been considered and applied throughout its design and conception.

3.5 Policy SP1 (A Sustainable Development Framework for West Lancashire) outlines that the Council take a positive approach to those developments which reflect a presumption in favour of sustainable development to improve the economic, social and environmental conditions of an area. It also indicates that all new built development should take place within the settlement boundaries, unless there is a need for rural development which retains and enhances an area's character.

3.6 Policy GN1 (Settlement Boundaries) provides further detail on appropriate proposals outside settlement boundaries, such as in the Green Belt, and states that developments will be assessed against the relevant national and local policies. The policy also outlines that development on Protected Land must retain or enhance the rural character of an area.

3.7 Criteria for delivering sustainable development is set out Policy GN3 (Criteria for Sustainable Development), which discusses criteria across design, accessibility, minimising flood risk, landscaping and environmental considerations to ensure it is achieved.

3.8 Policy RS1 (Residential Development Outside Settlements) guides the amount and location of residential development across the Borough. Particularly pertinent is detail regarding development outside settlement boundaries and within the Green Belt, which is limited to small-scale affordable housing, when no other sites are suitable. On Protected Land outside settlement boundaries, small-scale 100% affordable schemes may also be permitted.

3.9 Policy IF2 (Enhancing Sustainable Transport Choice) seeks to encourage the use of sustainable modes of transport through development decisions, whilst improving road safety for all users. It also outlines the recommended Parking Standards for residential development and the requirement for Electric Vehicle Recharging points, outlining a requirement for 1 charging point per house.

3.10 Policy EN1 (Low Carbon Development and Energy Infrastructure) sets standards for developments in terms of low carbon design and measures to ensure resilience to and mitigation of the effects of climate change. This is supported by the Council's Climate



Change Strategy and Action Plan (2020-2030), which sets seven priorities to achieve a greener West Lancashire.

- 3.11 Policy EN2 (Preserving and Enhancing West Lancashire's Natural Environment) requires development to have regard to the surrounding character types in the Borough, and will only be permitted where they make a positive contribution to this landscape or historic character. The level of protection depends upon the quality, importance and uniqueness of the landscape, determined by Supplementary Planning Guidance.
- 3.12 Policy EN3 (Provision of Green Infrastructure and Open Recreation Space) indicates that the Council support the provision and maintenance of a network of green spaces across the Borough to facilitate active, healthy lifestyles for people. To do this, the policy states that all development must, where possible, enhance and safeguard existing networks of green links.

### **Emerging Local Plan**

- 3.13 Preparations for the new West Lancashire Local Plan 2023-2040 initially began in Autumn 2019, before being suspended due to the Covid-19 pandemic.
- 3.14 Work resumed on the Plan in March 2021, and a regulation 18 consultation is due to take place in Autumn 2021 to discuss the content of the new Local Plan. At the time of submission, there were no consultations available to assess this proposal against.

### **Other Material Considerations**

#### **National Planning Policy Framework**

- 3.15 The National Planning Policy Framework (NPPF) sets out Government planning policies for England and how they are expected to be applied by local planning authorities. The policies contained within the NPPF are a material consideration in the determination of planning applications.
- 3.16 The NPPF sets out that the purpose of the planning system is to contribute to the achievement of sustainable development. For the planning system this means achieving the three overarching objectives (economic, social, and environmental), which are interdependent and need to be pursued in mutually supportive ways.
- 3.17 The NPPF continues to explain that planning decisions should play an active role in guiding development towards sustainable solutions, but in doing so take local circumstances into account, to reflect the character, needs and opportunities of each area.
- 3.18 Section 4 of the NPPF states that local planning authorities should approach decisions on proposed development in a positive and creative way, with decision-makers at every level seeking to approve applications for sustainable development where possible.
- 3.19 Early engagement is encouraged, with good quality pre-application discussion enabling better coordination between resources and improved outcomes for the community (paragraph 40).
- 3.20 Section 5 of the NPPF focuses on delivering a sufficient supply of homes and sets out a list of criteria for when the development of isolated homes in the countryside are acceptable (paragraph 80). One of these criteria reads:

*“e. The design is of exceptional quality, in that it:*

- is truly outstanding, reflecting the highest standards in architecture, and would help to raise standards of design more generally in rural areas; and*
- would significantly enhance its immediate setting, and be sensitive to the defining characteristics of the local area.”*

3.21 Within Section 11 (Making effective use of land), paragraph 124 also encourages developments that make efficient use of land, taking into account the “importance of securing well-designed, attractive and healthy places”.

3.22 This is further expanded within Section 12, which discusses achieving “high-quality, beautiful and sustainable building and places” for people to live, as a key element of achieving sustainable development, and “fundamental to what the planning and development process should achieve” (paragraph 126).

3.23 Paragraph 130 states that planning policies and decisions should ensure that developments:

*“a) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;*

*b) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping;*

*c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities);*

*d) establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit.”*

3.24 Furthermore, significant weight should be given to outstanding or innovative designs, promoting high levels of sustainability and enhancing the design of an area, provided they are sensitive and complementary to the form and layout of their surroundings (Paragraph 134). This is supported within Section 14 which discusses the importance of meeting the challenge of climate change, and states that the planning system should “support the transition to a low carbon future in a changing climate” (Paragraph 152).

3.25 The NPPF also offers guidance on development within the Green Belt in Section 13. Development of new buildings in the Green Belt should be viewed as inappropriate by local planning authorities, *unless* it satisfies one of the criteria outlined within Paragraph 149, including:

*“d) the replacement of a building, provided the new building is in the same use and not materially larger than the one it replaces”*

#### **Development in the Green Belt SPD (2015)**

3.26 This Supplementary Planning Document expands upon Local Plan Policy GN1 (b), which states that developments in the Green Belt will be assessed against relevant local and national planning policy.

3.27 Policy GB1 (Replacement dwellings in the Green Belt) sets out several criteria which must be satisfied for a proposal to be approved:

- a) *The existing dwelling is lawful and permanent in nature;*
- b) *The total volume of the replacement dwelling should not be more than 20% greater than the dwelling that it replaces;*
- c) *The replacement dwelling should not materially harm the openness of the Green Belt through excessive scale or bulk. It should also be in keeping with the character of the area and appropriate in terms of design and materials;*
- d) *The curtilage of the replacement dwelling should be no larger than that established for the dwelling it replaces*
- e) *The replacement dwelling should be on or close to the footprint of the one, it replaces, unless it can be satisfactorily demonstrated that an alternative location within the same curtilage will have no adverse impact on openness or achieve significant environmental improvements or road safety benefits.*

3.28 Despite the figure of 20% increase in volume quoted above for the replacement dwelling, the SPD states that applications will be determined on their impact on the openness of the Green Belt, design, siting and location. Consequently, it is possible that a proposal could be deemed appropriate despite the volume increase being slightly higher than the limit above, if designed sensitively.

3.29 We also note in paragraph 1.1 of the SPD, that the SPD will not propose changes to the Green Belt Boundaries but will be used to make a judgement call on the planning applications submitted to the Council. The SPD further confirms:

*“However, all applications will be judged on their merits and on a case by case basis, having regard to the adopted local plan and any other material considerations including the national planning policy and this SPD”.*

3.30 The SPD therefore confirms that the Council will consider each case on this on merits and against other material considerations that will in our view need to be considered against the above criteria in Policy GB1.

**Natural Areas and Areas of Landscape History Importance SPG (2007)**

3.31 This Supplementary Planning Guidance, although relatively outdated, identifies the site within Zone 4 – a Natural Area of wood and pasture. It highlights ‘General Characteristics’ associated with this category of Natural Area, plus mechanisms of minimising any impacts upon them.

3.32 The site is also recognised as being an Area of Landscape History of County Importance, due to its characteristics of Ancient Countryside and industrial heritage. It specifically mentions the significance of the nearby Harrock windmill and quarries at Harrock Hill.

## 4. The Proposed Development

- 4.1 This application seeks detailed planning permission for the demolition and erection of a replacement dwelling at Glendale, Heskin in West Lancashire.
- 4.2 An overview of the proposals is provided below. Further and more detailed design information is provided in the submitted application plans, Design & Access Statement by Bennetts Associate Architects and Exterior Architecture (EA) and supporting technical reports.

### Layout

- 4.3 The proposed development is formed by a series of three blocks, lying parallel to each other to form a sliding blocks concept. They have been designed to fit with the existing site levels and consist of one main block and two smaller blocks positioned to the west. Plans for the layout are provided within the.
- 4.4 The ground floor of the main, central block includes a living room, kitchen and eating area, with various seating and communal areas and an additional evening terrace to the west. Connected to this is the smallest, northern block, which comprises an entertaining and leisure space, with associated terrace. Finally, the most southern block contains a laundry room, downstairs toilet, storage space and a utility room. These are accessible from the entrance courtyard to the east, which includes internal and external car parking spaces and an associated electric charging car port.
- 4.5 The first floor of the southern block comprises a pool, plunge pool, spa, gym and sauna adjacent to two guest bedrooms. The main, central block includes the master bedroom and bathroom, and the third guest bedroom and bathroom, with a study and view over the hall. The northern block includes a first floor terrace to the entertaining area, which enjoys uninterrupted views across the garden and open countryside beyond.
- 4.6 These blocks are set within a landscaped garden, detailed below, with areas of soft and hard landscaping throughout the site.

### Scale

- 4.7 We can confirm that the proposed new replacement house will comprise 2,842.5 m<sup>3</sup>, this compares to the existing house and bungalow of 2,181m<sup>3</sup>, this represents a 31.3% increase on the current building.
- 4.8 The house fits within the height and surface area façade of the existing house but, following pre-application feedback from WLBC is now less dominant and intrusive in its overall massing and scale. Total proposed surface area of elevations reach 266m<sup>2</sup> this compares to 225 m<sup>2</sup> on the existing buildings, and would represent an 18% increase on the front surface area of the front facade.
- 4.9 Notwithstanding these volume and elevation sizes, the proposed building has been horizontally and vertical broken down into key components which seeks to breakdown the sense of scale of the new building. This is important as the existing main building is taller at 9.7metres to the ridge height, whereas the proposed new building is just 6 metres.
- 4.10 The main proposed building is 40.6 metres in length, this compares to the two existing buildings that collectively measure 44.6metres. Albeit the two existing buildings are split by a 12 metre gap which further extends the elevation.

- 4.11 The above dimensions demonstrate that the proposals seek to reduce the overall spatial dimensions of the replacement building in the wider setting of the site and character area.
- 4.12 The design team have sought to soften the sense of scale of the proposal by the introduction of softer more naturalised materials that are local to the area and the wider character of West Lancashire. This is supplemented with glazing treatments that seek to mirror the surrounding green infrastructure. This approach is instead of the harder red brick and grey slate housing typology of the two existing buildings, which create a more solidified building character that is more prominent in this location.
- 4.13 In addition to the scale of the proposed new building, we can confirm that a new landscape strategy has been prepared which seeks to increase the level of green infrastructure across the curtilage of the building. This new planting and bio-diversity enhancement will significant soften the scale of the building on this hillside.

### **Access and Parking**

- 4.14 Vehicular access will no longer be gained from the north-eastern corner of the site, which led to a driveway interrupting the open space and rural character to the north of the property. An alternative access is proposed from Sanderson Lane directly east of the dwelling, providing swift and direct access to parking facilities.
- 4.15 Parking provision includes four internal parking spaces, all of which will be electric charging ports to future proof the building and ensure that it is contributions to zero emissions from the owners' vehicles. Two of the parking spaces are within a carport and the other two are in an enclosed garage.

### **Appearance**

- 4.16 The materials palette has been informed by a combination of local vernacular references, which are largely local stone, such as sandstone, timber and wood-fibre board. The architectural design as sought to deliver a contemporary re-interpretation of Georgian elegance principles. The principles are delivered through traditional load bearing structures, formalising the façade, crafted elements of detail, the application of the golden ratio and the expression of floor plates.
- 4.17 Textured stone has been chosen for the base of the building, with precast and honed stone to complement this, creating lighter elements for variation. Precast horizontal lines are included to break up the massing and connect with the landscape, whilst two darker feature areas provide some further contrast.
- 4.18 Timber has been chosen for the garage doors, with balustrade bronze metal work details on the first floor and balconies attached to the master and first guest bedroom, looking over the garden. Green roofs are included over the south block and garage, whilst solar panels cover the roof of the main, central block.

### **Landscaping**

- 4.19 The landscaping proposed significantly diversifies the existing planting and variation of habitats on the site.
- 4.20 Surrounding the house, a combination of hard and soft landscaping is proposed, incorporating areas of sett and sandstone paving, interspersed with wetland and ornamental planting and lawns. Towards the rear of the property, woodland planting

dominates, in-keeping with the existing southern boundary, and areas of timber decking are proposed to fit sensitively with this woodland character. Ornamental feature trees are also positioned around the house, again sensitively incorporating the development with its rural, woodland setting.

- 4.21 Generally, the height of trees and vegetation decrease towards the centre of the site. Feature and woodland trees are focused along the eastern and western boundaries of the site, with ornamental trees and specimen shrubs blending into orchard trees towards the centre of the site. The central strip will be dominated by wildflower meadow, with areas of ornamental planting to the west of the site, and wetland planting towards the pond at the north of the site. This low-level planting enables the retention of the rural vista visible from the property.

### **Net Zero Carbon**

- 4.22 Passivhaus standards have been applied to the proposal, seeking to deliver Passivhaus levels of heating demand and overall energy usage which are typically much lower than standard dwellings. The applicant is committed to delivering a zero carbon home as they are keen to remove their carbon footprint from the residential home as well as ensuring that their mobility is also carbon free.
- 4.23 The proposal aims to achieve Passivhaus Low Energy Building status. A Passivhaus consultant has been involved throughout the design to advise on how the Passivhaus standard can be followed as closely as possible. As a result of this, the house is projected to achieve very low levels of heating demand and overall energy use. This is a key part of the applicant's commitment to delivering a zero carbon home, as they are keen to reduce their impact on climate change.
- 4.24 The building will be managed by renewable energy supply and maximising its effectiveness. The building will be supported by a PV network on the roof, a ground source heat pump to be installed underground in the garden and will extract heat from the ground; battery storage will be provided and the building will be all electric from renewable sources.
- 4.25 This consequently is less damaging for the environment and responds to the effects of climate change, in addition to including the highest standards of design.

## 5. Key Planning Issues and Very Special Circumstances

- 5.1 This Section considers the key planning issues raised by the development in order to demonstrate how the proposal satisfies the three dimensions – economic, social and environmental – of sustainable development (NPPF, paragraph 8).

### Exceptional Design

- 5.2 Throughout the design process, a forward-thinking, innovative approach has been applied to ensure the property is an exemplar of beautiful, sustainable architecture and construction with zero carbon at its heart.
- 5.3 The property's exceptional design is the product of several factors, including its distinctive identity whilst being sensitive to the surrounding environment and character, the enhancement it offers to biodiversity, creation of a highly desirable living environment and application of the highest sustainability credentials resulting in a zero-carbon development.
- 5.4 The design has been informed by detailed discussion, collaboration and decision-making with West Lancashire Borough Council, to ensure a proposal, which mirrors their vision for a contemporary, sustainable building and adds to the current lack of exceptional design examples within the Borough. Equally, the proposals remove as rather poor built development that contributes very little to design and is unreflective of the outstanding natural environment within which the site is located.
- 5.5 Regarding design, comments from the second pre-application meeting were supportive of the proposal, following amendments being made in response to the comments initially made on the first pre-application submission. The LPA recognised the work that had been undertaken to soften and reduce the impact on the natural environment and setting of the Green Belt whilst balancing the client domestic requirements for the new replacement home.
- 5.6 Following the Passivhaus standard was strongly supported within discussions and are embedded within the design brief for the proposal to ensure the project leads the way for innovative zero carbon design.
- 5.7 Furthermore, the proposed design is not only beautifully crafted, inspired by Georgian architectural features, but responds to the rural character and form of the surrounding landscape. Local stone materials have been sourced to ensure the building blends seamlessly with the surrounding vernacular, incorporating local sourced stone that softens the building into the hillside location and is sympathetic to the West Lancashire ecosystem and history. This ensures that the building is not only appropriate for the current landscape, but is of timeless quality that will be a building of long-lasting architectural value and quality.
- 5.8 To ensure that the surrounding rural vistas are not compromised, the building's massing has been carefully designed to lie at a low level, which does not disrupt the openness of the surrounding landscape. The significance of this specific design response is discussed further below.

- 5.9 Integral to the property's design is liveability; ensuring the highest standards of comfort, convenience and well-being for the applicants and future residents. At present, the existing house does not maximise the site assets. Its location in the south-western corner of the site, close to the dense treeline, results in shadowing and very limited winter sunlight particularly. This significantly compromises the quality of life of the owners through an oppressive living environment. The proposed alternative location will result in higher levels of natural light, whilst maximising extensive, impressive views to the north across West Lancashire. The movement of the building to a more centralised location but lower within the site itself will significantly reduce the impact on the wider openness but at the same time allow improved sunlight and connectivity with the wider plains.
- 5.10 Further, the design of the new building also needs to be considered in the context of the significant landscaping enhancement across the wider site, which will incorporate new tree planting, meadow and orchards that will significantly add to the net bio-diversity net gain of the wider hillside location. This is in the context of a mainly grassed hillside location that offers little in terms of bio-diversity. This significant landscaping will soften the hillside location and naturalise this setting of the building further whilst enhancing the bio-diversity character of the site.
- 5.11 It is therefore considered that the proposal is in accordance with paragraph 80e of the NPPF, as it delivers a building with the highest standards in architecture and sustainability in West Lancashire; an area currently lacking in exceptional design. The property will therefore raise the standards of design for the Borough, whilst being an exemplar of zero-carbon homes, which are indicative of the future direction. Alongside this, the property integrates seamlessly with its rural setting, reflecting the character of the local area through its choice of materials, massing and vernacular style. The development should be seen as an exemplar benchmark from which future West Lancashire homes should aspire to deliver to and set the scene for housing delivery through 2050 and beyond.
- 5.12 Furthermore, it satisfies Policy GN3 of the Local Plan, as it meets many criteria for sustainable development, particularly in this case in terms of its incorporation of zero/low carbon principles, enhancement of biodiversity and protection of the character of its setting.

### **Green Belt**

- 5.13 The proposed development accords with paragraph 149d of the NPPF in that it seeks to create a new, single, main residential property that replaces two properties on the subject site. Careful consideration has been given to the volumetric scale of the building, whilst also seeking to balance a zero carbon design principle that is a key deliverable to the project and the client.
- 5.14 Paragraph 145d of the NPPF establishes two "tests". First relating to the use, and then the second an assessment of the relative size of the existing and replacement building. As a simple matter of fact, the proposal would be the same use as the existing use thereby, passing the first test. The second test is a matter of judgement based on the evidence of each case as the Framework does not define 'materially larger'. We can confirm that the current two properties are both lawful and have been subject to varying extensions since the 1980s as confirmed in paragraph 2.12. As such, the existing buildings satisfy Policy GB1a of the Council's SPD on Green Belt (2015).



- 5.15 As discussed above, the issue of the use of the proposed building is entirely factual. In terms of the second test, however, this requires the application of planning judgement. In comparing the volume of the proposed dwelling and the existing buildings on the site, we can confirm that the proposed residential development is marginally below the 20% greater than threshold of the existing building. For example, the proposed replacement dwelling is at 19% of the existing property volume. However, the single storey 200m<sup>3</sup> car park area to the west of the main property increases the overall volume to 31%.
- 5.16 If the proposal was to be constructed of traditional build quality and technique to current building regulations (2017), then the proposed building would have a volume of 2,650m<sup>3</sup>. However, the requirements of delivering a zero carbon property with very low heating demand of Passivhaus standard adds significant thickness to the proposed walls, and therefore the building's volume becomes 260m<sup>3</sup> larger. This is due to significant layers of insulation increasing the thickness of the walls, improving the thermal performance of the building and retaining heat from existing sources. Table 5.1 below shows the volumetric position of the proposed development against the existing building position. A more detailed analysis prepared by Bennett's Associates is contained in Appendix 1.
- 5.17 This proposal constitutes the delivery of the first Zero Carbon property in West Lancashire and one of only a handful approved in the wider Lancashire County. We believe that this project will champion the response to climate change in West Lancashire and set a benchmark and precedent of zero carbon design and implementation of Passivhaus standards that will influence other developments in the Borough through to 2050.
- 5.18 We note that the proposed development will exceed the 20% increase threshold as defined within Policy GB1 of the SPD. However, on close integration of the footprint and floorplates of the building, we believe that the sustainability credentials of the project are being prejudiced by the bluntness of a volume threshold that has been very much accepted as part of managing the traditional building construction technologies of the post war period.

Existing Buildings	Proposed Building	Difference
2,181 m <sup>3</sup>	2,617 m <sup>3</sup> (Policy Compliant)	20%
	2,857 m <sup>3</sup> (Proposal)	30.9%
	*2,595 m <sup>3</sup> (minus 261.5 m <sup>3</sup> )	19.0%

\*excludes the 260m<sup>3</sup> of wall thickness required for Passivhaus/ZC requirements

- 5.19 In order to reduce space heating demand to Passivhaus Low Energy Building standards whilst minimising embodied carbon, the external walls of the house will be 700mm deep compared to approximately 350mm deep on the existing properties at the site, this leads to a 100% increase in wall depth to that of traditional build home. The width of the walls is also increased as a result of the thickness of applying locally sourced stone material on the external façade. This is important as it helps enhance the embedded carbon position that makes a significant contribution to the zero carbon position.
- 5.20 When this deeper wall depth is extrapolated across the surface area of the perimeter walls of the whole building (minus the garage as we are not proposing to insulate this area) the

volume of the additional wall depth is estimated at about 261.5m<sup>3</sup> significantly more than the 224.9m<sup>3</sup> the proposal exceeds the guidance figure given in Policy GB1.

- 5.21 We can also confirm that the required plant room provided on the ground floor consists of 18m<sup>3</sup> that is required to deliver the Passivhaus Low Energy Building standard. The applicant has considered placing the relevant plant outside in an attempt to reduce the volume. However, placing the plant outside would significantly affect the energy efficiencies of the building and the gains made.
- 5.22 We are able to confirm that the surface area of the perimeter walls are 747.1sq.m, with an additional 350mm of Passivhaus depth this creates 261.5m<sup>3</sup> of wall volume to create the required zero carbon ambition of the proposed house. If we were to apply standard 350mm wall thickness to the design, the building would create a 2,580m<sup>3</sup> building that is just 19% of the original building and would therefore be policy compliant with Policy GB1. Indeed, on a traditional approach the design would totally accord with paragraph 149d of the Framework and would be appropriate development so by definition would not be harmful to the Green Belt.
- 5.23 We can also confirm that the internal living area within the proposal for the applicant is consistent with the existing two properties. Therefore, despite the new design, the area of future occupation and space remains the same as that currently enjoyed in the two properties. As such, the threshold space requirement of Policy GB1 de-incentivises the implementation of best practice when it comes to securing best thermal construction and energy retention in development. Therefore, we are of the view that the application of Passivhaus design measures and low and zero carbon technologies to deliver world leading, exceptional architecture and design need to be considered as part of very special circumstances in this particular case.
- 5.24 We can also confirm that the garage is to be set up for electric charging points within the building that will further contribute to the transition to electric vehicles by 2030, as being actively promoted by the UK Government.
- 5.25 The applicant could look to deliver this project through traditional design and build technologies and the fallback would be that the project would satisfy Policy GB1 of the SPD and paragraph 149d of the Framework, as it would not be materially larger than the buildings it replaces.
- 5.26 However, we can confirm that the Passivhaus and zero carbon aspirations for the building would technically trigger the proposed volume to be in excess of Policy GB1 threshold limit and therefore be inappropriate development in the Green Belt. However, we believe that the applicants' desire to deliver the first Passivhaus Low Energy Building in West Lancashire with zero carbon credentials represents very special circumstances and be outweighed by other considerations. This very special circumstance is further strengthened by the fact that the proposals seek to replace buildings of poor quality design and carbon design with residential development of exceptional design that will create a more sustainable house for the future, positively addressing and influencing the Council's climate change strategy and action plan.
- 5.27 We can also confirm that the main house will need to be retained to be lived in until the proposed new house is fully developed and implemented. The applicant is content to agree a condition that the existing main home is demolished within 6 months of occupation of the new proposal being occupied. We can also confirm that the existing

buildings will be replaced with new gardens and bio-diversity, which will replace the existing gardens on the site. This accords with Policy GB1 that confirms that:

*“where appropriate, a condition will be attached to any permission requiring the demolition of the existing property before any replacement is occupied and remediation of the site following demolition of the dwelling”.*

- 5.28 The LVIA assesses the proposed development against five purposes of the Green Belt. Due to the site’s rural, relatively isolated location, there is no risk of the development causing unrestricted sprawl, encroachment upon the countryside, or the merging of settlements. As the development is of similar position and footprint to the existing buildings, this is also deemed to be closely comparable to the scale of the development being replaced. Furthermore, there is no risk to the setting of a special historic town due to the site’s distance from existing settlements. The final purpose is assisting regeneration and recycling derelict land which, although the site is not derelict, it has been previously developed upon, and is therefore preferable to undeveloped Green Belt land.
- 5.29 The “openness” of the Green Belt’ is a concept not narrowly limited to the volumetric approach. The word ‘openness’ is open-textured and a number of factors are capable of being relevant. Among these will be factors relevant to how built up the Green Belt is now and how built up it would be if redevelopment occurs, and factors relevant to the visual impact on the aspect of openness which the Green Belt presents.
- 5.30 In light of the unintended trigger of inappropriate development, Exterior Architecture (EA) has prepared a Landscape Visual Impact Assessment (LVIA). The LVIA identifies fifteen (15) views to the application site, mainly to the north of the site, due to the mature green infrastructure that bounds the site to the south, east and west and that frames the existing site and building. These views are identified within 2 km distance from the site and are listed in Section 5 of the LVIA. We can confirm that for four of the fifteen locations there is no impact on the openness on the green belt from these views. For the remaining viewpoints, visual impact of the proposed development is reported to be minor, and either beneficial or neutral when considered in the context of the existing buildings. Furthermore, the development would result in a moderate-minor beneficial effect on the Harrock Hill nature conservation site as a result of the proposed landscape enhancements.
- 5.31 The openness in this case is significantly protected to a certain degree by the mature green infrastructure that frames the site. Given the proposed scale and massing, articulation of the design of the proposed new residential unit, and that the building footprint is moved slightly to the east and lower within the site, it therefore improves the existing impact on the Green Belt. This is further softened by the application of more naturalised materials that reflect the local built environment and character of this part of West Lancashire. Thus, due to the lack of visual impact, the spatial impact of the proposal is in our view ameliorated. As the degree of harm to openness is reduced, in turn this should enable a decision maker to conclude that the level of Very Special Circumstances required to overcome that harm should be reduced accordingly. The LVIA validates that the proposed development will not result in an adverse impact on the openness of the Green Belt, concluding the impact is negligible. In fact, it is quite the contrary; we believe that the proposed development will remove two poorly designed, domestic buildings that in part have been delivered through permitted development. They contribute little to the local built environment and are poor examples of buildings in the context of addressing climate change through carbon reduction measures. In conclusion,

the proposed development fully satisfies Policy GB1c in that it will not materially harm the openness of the Green Belt and the exceptional design approach will be in keeping with the character of the local area in terms of both the application of design principles and materiality.

- 5.32 In the context of Policy GB1d, we can confirm that the curtilage of the replacement dwelling is consistent with that of the established dwelling it replaces. For example, the existing immediate curtilage is **XX** sq.m and the proposed is **XX sq.m**
- 5.33 Lastly, in terms of the consideration of Policy GB1e, we can confirm that the single dwelling will move from the current footprint of the two existing buildings. However, this is first to allow us to build the new home to then allow the other buildings to be demolished thereafter and following occupation. The proposed new home does sit further down the site and therefore this reduces the impact on the wider openness of the site. In our view, the alternative location will reduce the impact on the openness as it will reduce the scale of the building within the setting of the hillside environment. This is further compounded by the fact that the proposed building is designed with a lower height and a flat roofline, compared to the current traditional pitch roof design. Therefore, as exhibited in the LVIA, the proposed building will have less prominence in this location and will consequently have a betterment on the openness of the Green Belt.
- 5.34 In conclusion, any the harm to the Green Belt is negligible, if not positively reversed when the current residential property is removed and replaced with the more sympathetic design approach that engenders a positive response to climate change and the zero carbon ambitions of the Council. This negligible harm then needs to be weighed against the other very special circumstances the proposal delivers through exceptional design and its sustainability credentials as set out below.

### **Environmental/Sustainability**

- 5.35 West Lancashire Council declared a Climate Emergency in July 2019, aspiring to be a carbon neutral Council by 2030. As part of this commitment, the declaration recognises that 18% of carbon emissions come from buildings, most of which are homes. Accordingly, the council resolved to work with partners to deliver carbon reductions and consider how to ensure all new homes are built to zero carbon home design codes. This proposal incorporates strategies to ensuring it will be of the highest quality of zero carbon design, and therefore be an exemplar of a sustainable home within West Lancashire.

### **Passivhaus Standards**

- 5.36 The Passivhaus standard is one of the most rigorous energy performance standards in the world and consequently widely deemed best practice for achieving low-energy buildings.
- 5.37 As discussed above, The Passivhaus standard has been followed as closely as possible on this proposal, with the aim being to achieve certification as a Passivhaus Low Energy Building in order to achieve a building with reduced in space heating requirements, compared to standard UK practice. The reduction will be confirmed when Passivhaus modelling is completed. This consequently results in reduced carbon emissions, due to very low energy requirements for heating. Applying the Passivhaus standard is widely considered to be the best way of reducing the future operational carbon emissions of the

built environment, which is key to the UK's net zero carbon targets being achieved and supporting West Lancashire Council's declaration to be carbon neutral by 2030.

- 5.38 In addition to the increased insulation within the walls of the property discussed in paragraph 5.9, the building will also incorporate features such as providing mechanical ventilation with heat recovery throughout the house, excellent standards of airtightness, triple glazed windows, minimal thermal bridging and a highly efficient heating system of underfloor heating supplied from a ground source heat pump.
- 5.39 By utilising Passivhaus Planning Package Software, calculations suggest that this will result in the property achieving "Low Energy Building" standards of overall energy usage. Calculations have also deemed the house to an industry-leading level performance in terms of operational energy use.
- 5.40 The proposals for the house has been modelled using the Passivhaus Planning Package (PHPP) software, with initial results suggesting that it will be possible to achieve levels of heating demand and overall energy usage that are compliant with the Passivhaus Low Energy Building standard. The results of the PHPP modelling has also been used to calculate a predicted energy use intensity (EUI) for the house, which is below the industry-leading standards set out by LETI and the RIBA 2030 Climate Challenge.

### **Net Zero Carbon**

- 5.41 The proposal has applied strategies to ensure it achieves net zero status for both operational and embodied carbon, contributing to the commitment to the achievement of net zero both within West Lancashire and nationally. As set out earlier in Section 4, the client is seeking to create a new home that is of timeless, exemplary design and able to respond to the climate emergency by targeting net-zero carbon for both operational carbon (the carbon emission produced in the running of the building) and the embedded carbon (the carbon emission produced in production of materials).
- 5.42 The delivery of net-zero carbon in operation will be targeted and evidenced by targeting the Passivhaus Low Energy Building accreditation. In summary Passivhaus buildings work by creating a highly insulated building with a much higher level of airtightness compared to conventional builds. This combination allows the house to require only minimal heating, with fresh air supplied by a heat recovery unit that takes heat out of extracted air and transfers this to the fresh air entering. The applicant is content with a condition to be imposed on any planning consent to ensure that this energy building position is delivered as it goes to the heart of the planning philosophy.
- 5.43 As set out in Section 4, to achieve this the external walls need to provide a significantly more effective thermal envelope than you would find in a conventional home or is required by Building Regulations. This will be achieved through a significant amount of additional insulation around the perimeter of the whole building, which amounts to a significant portion of the volume allowance
- 5.44 In the Net Zero Carbon Strategy, we have set out the operational energy use that is being aimed for and present the results of the modelling to show that we are currently on track to deliver this. To secure this principle, the design team are content to agree to an appropriate condition to ensure that this is managed through the implementation of the proposal. We have provide a possible example of a Net Zero Carbon condition that deals with embedded carbon and Net Zero operational energy and carbon

- 5.45 In addition to minimising operation carbon, the proposal is seeking to build using materials that are low in embodied carbon. The primary materials used in the construction of the building will be a combination of natural materials such as timber, straw and local stone, all of which add to the depth of the perimeter walls.
- 5.46 Consequently, each kilogram of CO<sub>2</sub> has been tracked and minimised through strategies such as reducing embodied carbon within the materials used; incorporating passive measures to reduce energy required for heating, ventilation and lighting; utilisation of energy efficient systems within the house; and electric-only heating system; delivered partly through on site renewable technologies.
- 5.47 The proposal also meets one of the key priorities of the Council's Climate Change Strategy and Action Plan (2020-2030); local people embracing the green agenda and contributing to the Council's goal to be carbon neutral by 2030. The desire of our proposal is not only to create an exemplar house, but also to support West Lancashire Council in their Net Zero Carbon ambitions. This will be achieved through a drive to reduce both operational and embodied carbon and this should be wholly commended. To achieve this, it does equate to a significant amount of additional volume taken up by the perimeter walls compared to their existing house. We have put forward in Appendix 2 a possible Zero Carbon condition that the applicant is keen to secure to any consent as a commitment to delivering this key design aspiration that will secure the very special circumstances of the proposal;
- 5.48 Consequently, the proposal is in accordance with Policy EN1 of the Local Plan, which seeks to mitigate and adapt to climate change through the delivery of low carbon design. The proposal meets Level \_\_\_ of the Code for Sustainable Homes and BREEAM \_\_\_\_\_.

**Biodiversity net gain**

5.49 TBC on receipt.

## 6. Additional Considerations

### Transportation and Access

- 6.1 Transport and accessibility matters are covered in detail in the Transport Note (TN) prepared by Mode Transport, accompanying this application submission. The TN deals with some of the key conclusions of relevance to the objectives of local transportation in Policies IF2 and GN3 of the Local Plan.
- 6.2 The TN concludes that the proposed development will not have a detrimental impact on highway safety, and that access arrangement and visibility splays accord with relevant highway design standards. Furthermore, safe entry is available for the largest vehicles associated with the proposed development.
- 6.3 Furthermore, the proposed on-site parking provision is compliant with the minimum standards outlined within Policy IF2 of the Local Plan and incorporates 4 Electric Vehicle charging points.
- 6.4 The TN therefore concludes that the proposed development will not have a severe impact on the local highway network, seeks to reduce the environmental impact of transport and adheres to the Council's recommended Parking Standards. It is therefore in accordance with policies IF2 and GN3 of the Local Plan, and results in no transport or highway reasons to object to the application.

### Ecology and Habitat

- 6.5 Protection and enhancement of habitats and species are included as part of the criteria for sustainable development, outlined in Policy GN3 of the Local Plan. Policy EN2, which supports the preservation of West Lancashire's natural environment, echoes this, reinforcing the importance of ensuring improvements to biodiversity at a range of scales.
- 6.6 A Preliminary Ecological Appraisal and Bat Roost Assessment have been completed for the site in order to establish the potential impact upon wild plants and animals caused by the development, and recommendations to minimise this impact.
- 6.7 The Preliminary Ecological Appraisal identified that, at present, there is no evidence of protected species on the site that could be affected by development, although bats, amphibians, badgers and hedgehogs *may* be present. Several further surveys are recommended to establish what mitigation methods may be suitable for the site to ensure its ecological enhancement, such as an Amphibian Appraisal and Breeding Bird Appraisal.
- 6.8 As outlined in Policy EN2, the Council will consider the required level of protection for habitats by applying a hierarchical approach to nature conservation sites across the Borough. The Preliminary Ecological Appraisal, however, has indicated that the site does not contain, or lie within or adjacent to, any statutory or non-statutory designated sites.
- 6.9 Although the development includes loss of grassland, the proposed landscaping will enhance the biodiversity, habitat and species variety significantly.
- 6.10 This wide variety of landscaping will diversify the levels of biodiversity on-site.
- 6.11 The Bat Roost Assessment found evidence of recent roosting bats in both residential units, and further roosting opportunity areas. Consequently, a dusk emergence survey

and dawn re-entry survey will need to be completed for the site, from May 1<sup>st</sup> 2022 onwards. The applicant is to propose that this is conditioned, as no buildings are to be removed before late 2022 and therefore there is not threat to bat habitat in advance of further surveys being completed.

- 6.12 Subject to the further required surveys being completed, the proposed development is in accordance with policies GN3 and EN2 of the Local Plan which seek to protect and enhance the biodiversity of West Lancashire, also reinforced within the Local Plan's vision for the borough. The proposals commit to enriching the biodiversity of the location, whilst safeguarding the species that are currently present through appropriate mitigation measures.

#### **Tree and Arboricultural**

- 6.13 Due to the presence of woodland areas, comprising mature, well-established trees on the site, an Arboricultural Impact Assessment (AIA) has been completed by William Brockbank. This provides guidance on the sustainable management of trees throughout the design, demolition and construction stages of development, securing their long-term protection.
- 6.14 Policy EN2 of the Local Plan seeks to protect, preserve and enhance West Lancashire's natural environment, including trees of "significant amenity, screening, wildlife or historical value", which were assessed in the context of the development within the AIA.
- 6.15 Regarding construction of the property itself, the AIA identifies a Willow and several lower class trees which will require removal. Although prominent within the site, the AIA concludes that due to the Willow not being visible from outside the site boundary, and coupled with the proposed large scale planting, its loss is sufficiently mitigated. The lower class trees will also be replaced elsewhere in the site, and the low value Laurel and Rhododendron groups proposed to be removed currently provide negligible benefits to the site.
- 6.16 Loss and trimming of existing trees are also discussed regarding the construction of driveways, gardens and paths. Provided there is sympathetic management of tree crown lifting to cater for the larger vehicles entering the site during construction, any unnecessary damage can be mitigated. The AIA provides thorough and specific options to avoid tree removal where possible, whilst ensuring there is adequate protection or mitigation via additional planting where not.
- 6.17 Accordingly, the guidance and recommended protective measures outlined within the AIA will be adhered to within the proposed development's construction, and consequently will comply with Policy EN2 of the Local Plan by ensuring no trees will be removed or damaged without sufficient mitigation in place.

#### **Flood Risk and Drainage**

- 6.18 Although the site lies within Flood Zone 1, and therefore has a low probability of flooding, a Flood Risk Assessment and Drainage Strategy have been completed for the property and submitted as part of the application. This is in accordance with Policy GN3 which requires development of areas of over 1ha in Flood Zone 1.



- 6.19 The assessment concludes that risk of flooding from fluvial sources, surface water, sewers, artificial sources and reservoirs are considered very low and therefore mitigation measures are not required for the proposed development.
- 6.20 The Drainage Strategy confirms that the proposals will not increase risk of flooding on or off the site, with sustainable drainage systems (SuDS) being implemented to adequately manage any surface water or overflow. These include a rainwater harvesting system, constructed pond with associated wetland habitat which will further increase biodiversity on site.
- 6.21 This is in accordance with Policy SP1, which sets a sustainable development framework for West Lancashire, which includes the avoidance of unnecessary flood risk. It also meets the additional sustainability requirements outlined in Policy GN3, including avoidance of development in Flood Zones 2 and 3 and requirement of a flood risk assessment due to the site's area exceeding 1ha. Furthermore, the reduction of impermeable surfaces and addition of SuDS will reduce runoff rates and risk of flooding on-site.

## 7. Conclusion

7.1 This Planning Statement has been prepared to address the key planning issues raised by the proposed demolition of a single dwelling within the Green Belt, and erection of a replacement dwelling at Glendale, Heskin in West Lancashire. It demonstrates the following:

- The proposed development is an example of exceptional design under paragraph 80g of the NPPF), and is seeking to deliver the highest quality of materials and sustainability credentials, offering an exceptional climate response.
- It is an opportunity to increase the offering of exemplary design in West Lancashire, meeting the Passivhaus Low Energy Building accreditation and zero carbon credentials of the new home will meet the Council's climate change strategy and action plan requirements;
- The exceptional design philosophy is considered to be a benchmark to champion the future delivery of net zero carbon homes in West Lancashire up to and beyond 2050
- The exceptional and sustainability credentials trigger the threshold limit of the SPD (Policy GB1) to warrant that the proposed development is inappropriate development from a technical volume position. However, the case has shown that the design philosophy and the zero carbon ambitions through Passivhaus credentials provide very special circumstances that should be considered positively in West Lancashire given the limited approach in the Borough to date. The proposal should be seen as champion and exemplar design to influence change in the Borough and address the challenge of climate change.
- The development's design ensures it has a negligible impact upon the openness of the Green Belt and removes an unsightly and poorly considered domestic properties that add little to the built and natural environment.
- Its design is sensitive to the local vernacular, including locally sourced materials that are complementary to the surrounding buildings and their character;
- The new dwelling will significantly improve the living conditions of those who occupy it, by increasing the amount of light to the building that in turn will source the energy efficiency and performance of the building.
- The development will enhance the biodiversity of the existing site with lead to a significant net gain to green infrastructure across the site and qualitatively improve the bio-diversity value of the site;

7.2 For these reasons, we commend the proposals to West Lancashire Borough Council and request this application be approved without delay in accordance with the NPPFs presumption in favour of sustainable development.

## Appendix 1: Volume Position

**Our client has commissioned us to design them a new home that is both of a timeless, exemplary quality design and able to respond to the the climate emergency by targeting net-zero carbon for both operational carbon (the carbon emissions produced in the running of a building) and embodied carbon (the carbon emissions produced in the production of materials)**

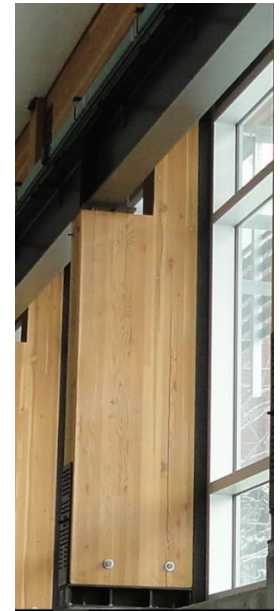
The exemplary design quality will be highlighted in the design and access statement.

Net-zero carbon in operation will be targeted and evidenced by targeting the Passivhaus Low Energy Building accreditation. In summary Passivhaus buildings work by creating a highly insulated building with a much higher level of airtightness compared to conventional builds. This combination allows the house to require only minimal heating, with fresh air supplied by a heat recovery unit that takes heat out of extracted air and transfers this to the fresh air entering.

To achieve this the external walls need to provide a significantly more effective thermal envelope than you would find in a conventional home or is required by Building Regulations. This will be achieved through a significant amount of additional insulation around the perimeter of the whole building, which amounts to a significant portion of the volume allowance.

In addition to minimising operation carbon, the client is seeking to build using materials that are low in embodied carbon. The primary materials used in the construction of the building will be a combination of natural materials such as timber, straw and local stone, all of which also add to the depth of the perimeter walls.

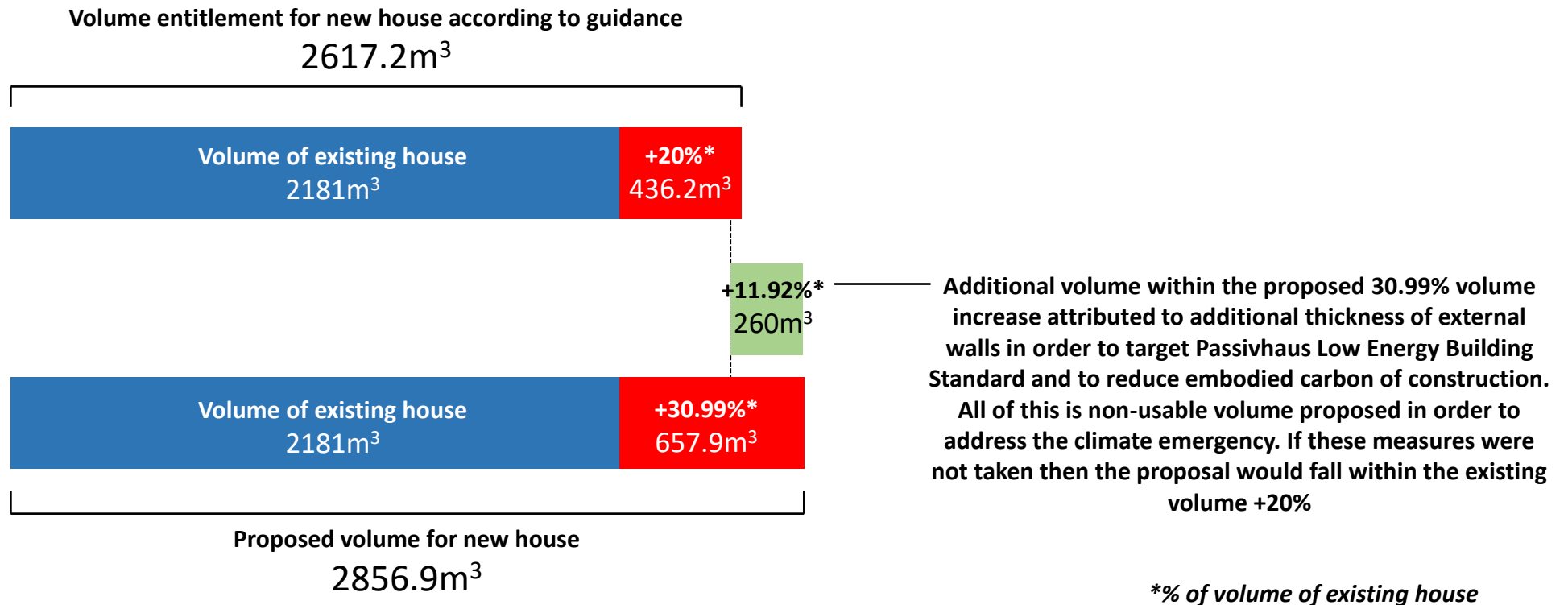
The desire of our client to support West Lancashire Council in their Net Zero Carbon ambitions through a drive to reduce both operational and embodied carbon is to be commended, but does equate to a significant amount of additional volume taken up by the perimeter walls compared to their existing house.



*Materials with low embodied carbon such as straw, local stone and timber all add to the depth of external walls.*

Under planning guidance our client is entitled to build a new property at the volume of their existing property, plus an additional 20% volume. The existing volume is calculated as shown in pre-app information, at 2181m<sup>3</sup>, therefore with an additional 20% the volume entitlement for the new house is calculated at 2617.2m<sup>3</sup>.

The volume of the proposal is calculated at 2856.9m<sup>3</sup>, using the same methodology used for calculating the volume of the existing house. This equates to an additional 30.99% on the volume of the existing house. However, as highlighted by the diagram below the 10.99% volume increase over the 20% entitlement is more than accounted for by the 11.92% attributed to additional wall thickness to target Passivhaus Low Energy Building Standard and reduce embodied carbon of construction. Volume measuring and additional wall thickness calculations are shown on the following pages.



## Volume Calculation

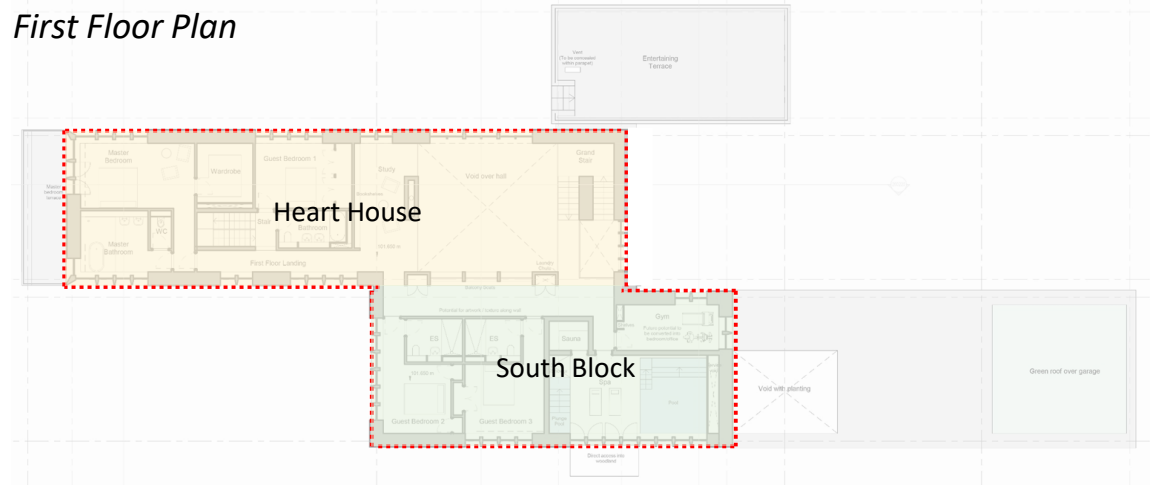
The volume of the proposal is calculated as shown, with the red dotted line indicating the perimeter within which the volume is measured on the plans opposite.

	Height	Area	Volume
Garage	3.145	60.6	190.7
Entertaining	3.3	73.9	243.9
Heart House	6.3	231.2	1456.5
South Block	6.3	153.3	965.8
TOTAL			2856.9

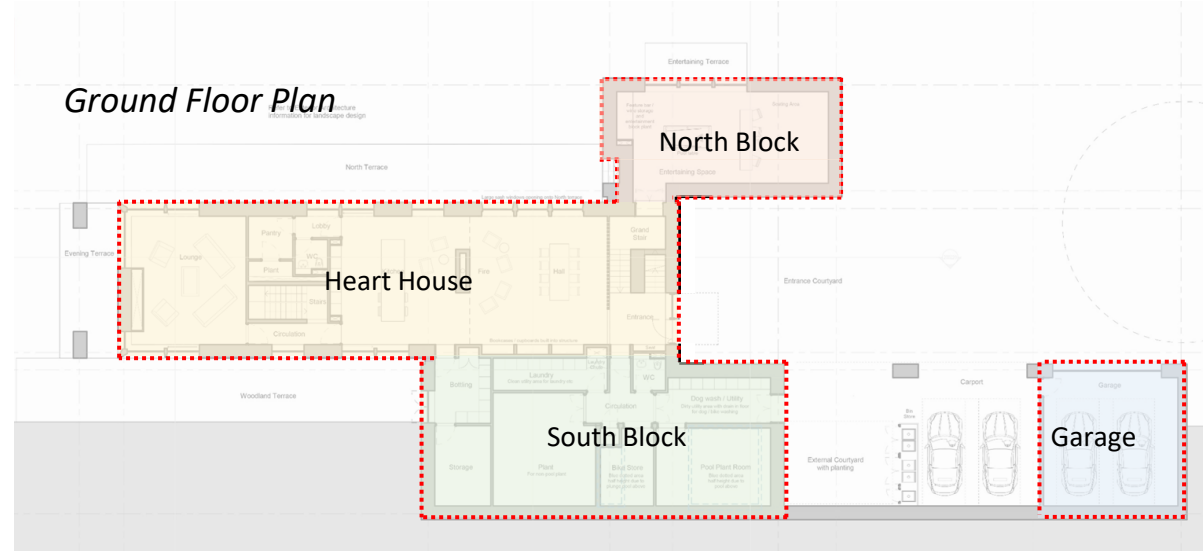
In elevation the volume of the proposal is calculated as shown to the right, with the red dotted line indicating the perimeter within which the volume is measured. This takes the base of the building as floor level, measured to the outer face of the external walls, and to the top of roof level, excluding the parapet and PV panels.

This is the same methodology that has been applied for calculating the volume of the existing house.

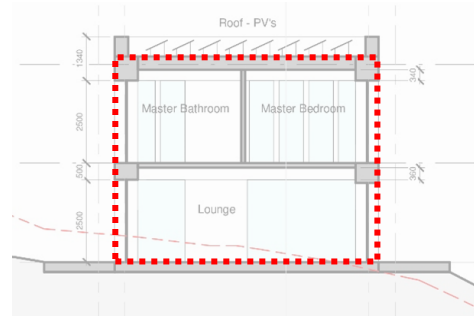
First Floor Plan



Ground Floor Plan



Section



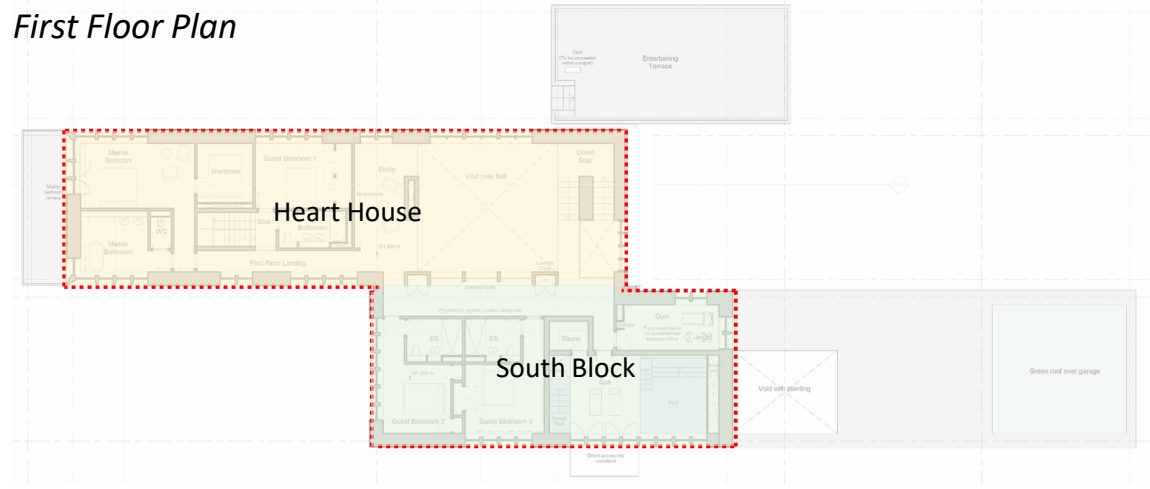
## Additional Wall Thickness Calculation

As highlighted in order to build a new house that can achieve the Passivhaus Low Energy Building Standard whilst minimising embodied carbon, the external walls of the new house will be about 700mm deep, compared to approximately 350mm deep on their existing house or for a standard new build home. This equates to an additional 350mm wall depth.

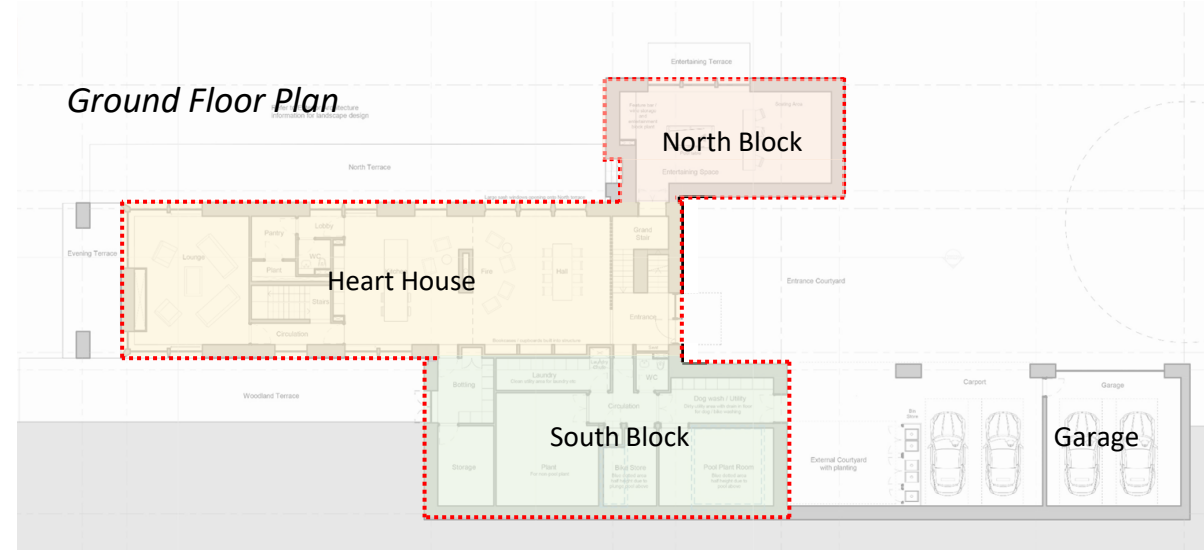
When extrapolated across the surface area of the perimeter walls of the whole building (minus the garage as this won't be insulated) the volume of the additional wall depth is estimated at about 260m<sup>3</sup> – significantly more than the 224.9m<sup>3</sup> the proposal is over the planning guidance. The external wall surface area is measured as highlighted by the red dotted line opposite.

	Height	Perimeter	Surf. Area
Garage	3.145	Excl.	Excl.
Entertaining	3.3	33.3	109.8
Heart House	6.3	60.7	382.7
South Block	6.3	40.3	253.9
		TOTAL	746.4

First Floor Plan



Ground Floor Plan



$$746.4\text{m}^2 \times 350\text{mm} = 261.2\text{m}^3$$

Surface area of perimeter walls      Additional wall depth      Additional wall volume due to sustainability ambition

## Appendix 2: Example of Typical Net Zero Carbon Condition

### Net Zero Embodied Carbon

Prior to commencement of the development, an Embodied Carbon Strategy Report shall be submitted to and approved in writing by the City Council as Local Planning Authority. The report shall describe the strategy for the reduction and limiting of embodied carbon and how material circularity will be embedded within the process of design, material sourcing, construction and stewardship/ building management and how this will be monitored as part of the life cycle analysis. The development shall aim for a lifecycle embodied carbon target of 600kgCO<sub>2</sub>e/m<sup>2</sup>(A1-C4) which is in accordance with The RIBA 2030 Climate Challenge interim date net zero carbon target metrics for the development.

Within 6 months of the completion of the development an Embodied Carbon Monitoring Report shall be submitted to the City Council. The report should include as-built embodied carbon life cycle analysis model results, assess the performance of the Embodied Carbon Strategy and include details of constraints, lessons learnt and guidance for future management of the building.

### Net Zero Operational Energy and Carbon

Prior to commencement of the development, an Operational Energy Strategy Report shall be submitted to and approved in writing by the City Council as Local Planning Authority. The report shall the strategy for the reduction and limiting of operational energy consumption and how this will be embedded within the process of design construction and stewardship/ building management and monitoring. The development shall aim for an energy use intensity of 206kWh/m<sup>2</sup>/yr or lower which is in accordance with The RIBA 2030 Climate Challenge interim date net zero carbon target metrics for the development.

Within 15 months of the completion of the development an Operational Energy Monitoring Report shall be submitted to the City Council. The report should include 12 months metered energy use data, assess the performance of the Operational Energy Strategy and include details of constraints, lessons learnt and guidance for on going improvement (reduction of energy use) for the building users/managers.